

Team 1 Fingerprint Matching Model Performance

Methodology

Each model uses a Siamese network architecture trained on pairs of real and altered fingerprints from the SOCOFing dataset real 6000 images for 600 persons, The datasets differ in the degree of alteration:

- **Easy:** Minor alterations (17,931 altered images).
- **Medium:** Moderate alterations (17,067 altered images).
- **Hard:** Significant alterations (14,272 altered images).

Pairs

- Positive pair same person same finger one from real dataset and the other from the alter dataset.
- Negative pair one form real dataset and the other from the alter dataset.

Test Metrics

DIFFICULTY	TEST ACCURACY	TEST AUC
EASY	0.9913	0.9999
MEDIUM	0.9904	0.9999
HARD	0.9953	0.9999

Additional Metrics

- **Easy:**
 - Training Accuracy: 0.9922 | AUC: 1.0000
 - Validation Accuracy: 0.9853 | AUC: 0.9999
- **Medium:**
 - Training Accuracy: 0.9908 | AUC: 1.0000
 - Validation Accuracy: 0.9867 | AUC: 0.9999
- **Hard:**
 - Training Accuracy: 0.9931 | AUC: 1.0000
 - Validation Accuracy: 0.9946 | AUC: 0.9999

